Postal Regulatory Commission
Submitted 4/2/2012 3:51:20 PM
Filing ID: 81816
Accepted 4/2/2012

BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268-0001

MAIL PROCESSING NETWORK RATIONALIZATION
SERVICE CHANGES, 2011

Docket No. N2012-1

RESPONSES OF UNITED STATES POSTAL SERVICE
WITNESS ELMORE-YALCH TO
PRESIDING OFFICER'S INFORMATION REQUEST No. 6, QUESTIONS 3-6

The United States Postal Service hereby provides the responses of witness Elmore-Yalch to Presiding Officer's Information Request No. 6 (POIR6), Questions 3-6, dated March 12, 2012. Each question is stated verbatim and followed by the response. The remaining response, to Question 7 of POIR6, should be forthcoming shortly.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Kevin Calamoneri
Managing Counsel
Corporate and Postal Business Law

Daniel J. Foucheaux
Chief Counsel, Pricing & Product Support

Kenneth N. Hollies
Attorney

475 L'Enfant Plaza West, S.W.
Washington, D.C. 20260-1137
(202) 268-3083; Fax -3084
April 2, 2012

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS
ELMORE-YALCH TO POIR 6

Question 3.

Please refer to the Postal Service's response to POIR No. 5, question 24, parts (b) and (c).

a. In the following table, please indicate with a yes or no response if a given point estimate of a volume change, β_t, is statistically different from zero by performing a Wald test of the null hypothesis $H_0: \beta_t = 0$ against the alternative hypothesis $H_a: \beta_t \neq 0$.

	National Accounts	Premier Accounts	Preferred Accounts	Small Businesses	Home-Based Businesses	Consumers
First-Class Mail						
Presort FCM						
Priority Mail						
Express Mail						
Regular Periodical						
Not-for-Profit Periodical						
Regular Bulk/Standard						
Not-for-Profit Bulk/Standard						
Total Mail Volume						

b. Please confirm that in order to perform the statistical test described in part (a), a two-sided test is required. If not confirmed, please explain and identify the necessary statistical test.

c. A one-sided Wald test is used to test whether the sign of a change in volume estimate is significant. For example, consider the point estimate of the change in total mail volume for National Accounts, $\beta = -0.14\%$. Then, a test of whether this estimate is significantly negative is constructed according to the following null and alternative hypotheses: $H_0: \beta \geq 0$ and $H_a: \beta < 0$.

i. Please confirm that for null hypothesis involving inequalities, a one-sided test is required. If not confirmed, please explain and identify the necessary statistical test.

ii. In the following table, please indicate with a yes or a no response if you are able to reject the null hypothesis that the estimate provided is of the opposite sign at the 5 percent level.

	National Accounts	Premier Accounts	Preferred Accounts	Small Businesses	Home-Based Businesses	Consumers
First-Class Mail						
Presort FCM						
Priority Mail						
Express Mail						
Regular Periodical						
Not-for-Profit Periodical						
Regular Bulk/Standard						
Not-for-Profit Bulk/Standard						
Total Mail Volume						

RESPONSE:

(a) This question requests additional analysis to determine if the forecasts for the percentage change in volume provided by ORC International (witness Elmore-Yalch) are statistically different from zero. This response is accordingly provided after consultation with statistical expertise available to ORC International.

In response to this question we have used a linear model in the form of $V_\Delta = \beta V_B$, where V_Δ is volume difference in response to proposed changes to First-Class Mail service standards, and V_B is projected volume before considering the proposed changes. We can solve for β using simple linear regression.

We can test the null hypothesis that there is no change in volume (H0: β=0) using the usual t-tests. In this case, since there is a single parameter being estimated, the t-test

is comparable to the Wald test, as documented in

http://www.blackwellpublishing.com/specialarticles/jcn_10_774.pdf.

Results from this analysis follow. A notation of "pass" indicates that the percentage change in volume for a product is statistically different from zero. A notation of "fail" indicates that we find insufficient evidence to reject the null hypothesis (H0: β=0) that there is no change in stated mail volume. **This does not, however, imply that measured change in volume is actually zero**. The null hypothesis can never be proven—that is, a set of data can only reject the null hypothesis or fail to reject it.

Two-Sided Tests

	National Accounts	Premier Accounts	Preferred Accounts	Small Businesses	Home-Based Businesses	Consumers
First-Class Mail	FAIL	FAIL	PASS	FAIL	FAIL	PASS
Presort FCM	FAIL	FAIL	PASS			
Priority Mail	FAIL	FAIL	PASS	FAIL	PASS	PASS
Express Mail	FAIL	FAIL	PASS	PASS	PASS	PASS
Regular Periodical	PASS	FAIL	FAIL			
Not-for-Profit Periodical	(N/A)	PASS	PASS			
Regular Bulk/Standard	(N/A)	FAIL	PASS			
Not-for-Profit Bulk/Standard	(N/A)	FAIL	FAIL			
Total Mail Volume	FAIL	FAIL	PASS	FAIL	PASS	PASS
n/a – Estimate of percentage change was 0% so test is not applicable						

(b) Since the null hypothesis specifies no direction for the difference, a two-tailed test is appropriate. Confirmed.

(c) (i) Confirmed. Since the null hypothesis is (H_0: $\beta \geq 0$) and we wish to test the alternative hypothesis that $H_a < 0$, a one-sided test is appropriate since the critical

values for which we can reject the null hypothesis H_0 are located entirely in one-tail of the probability distribution.

To check for one-tailed test of beta<0, a cell needs to have a significance value between .00 and .10 AND the coefficient must be negative. (i.e. it needs to pass a 2-tailed test at 90 percent level AND be negative). If a cell passes the two-tailed test at the 95 percent confidence level (see response to Question 3(a)) it by definition passes the one-tail test. If a cell fails the two-tailed test but has significance between .05 and .10 and the coefficient is negative, it passes the one-tailed test at the 95 percent confidence level.

(ii) The following is the result of this additional analysis. None of the values tested in 3(a) failed the two-tailed test but passed the one-tailed test.

One-Sided Test (For Negative Coefficients)

	National Accounts	Premier Accounts	Preferred Accounts	Small Businesses	Home-Based Businesses	Consumers
First-Class Mail	FAIL	FAIL	PASS	FAIL	FAIL	PASS
Presort FCM	FAIL	FAIL	PASS			
Priority Mail	FAIL	FAIL	PASS	FAIL	PASS	PASS
Express Mail	FAIL	FAIL	PASS	PASS	PASS	PASS
Regular Periodical	PASS	FAIL	FAIL			
Not-for-Profit Periodical	(N/A)	PASS	PASS			
Regular Bulk/Standard	(N/A)	FAIL	PASS			
Not-for-Profit Bulk/Standard	(N/A)	FAIL	FAIL			
Total Mail Volume	FAIL	FAIL	PASS	FAIL	PASS	PASS

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS
ELMORE-YALCH TO POIR 6

Question 4.

Please refer to the file "First-Class Mail_LargeCommercial_Final_DataFile_USPS-N2012-1.NP1.sav" and the variables Q12BILLS, Q12PAYMENTS, Q12ADVERTISING, Q12COMMUNICATION, Q12DOCUMENTS, Q12MAGAZINES, Q12NEWSPAPERS, and Q12NEWSLETTERS documented on pages 108-113 of your testimony.

a. Please confirm that most of the responses to these questions are missing, or are not provided.

b. Please explain how you handled these missing responses in calculating adjusted total mail volumes.

RESPONSE:

a) Not confirmed. The referenced questions were asked of a limited number of respondents based on their specific responses to preceding questions. Data reflecting responses to all questions posed, and answered, have been provided: as such, no responses "are missing, or are not provided."

The following table summarizes the logic, including questions asked and responses provided, which led to specific respondents being asked the referenced questions. (Refer to the questionnaires in my testimony (USPS-T-11, pp. 89-113) for details on respective questions and related programming notes.)

Q12BILLS	S701 = 1 (Yes)	S701A = 1 (Yes)	Q3 >0	DIFFERENCE_BILLS <>0 DIFFERENCE_BILLS IS A COMPUTED VARIABLE (Q1A_2012 – Q5A)
Q12PAYMENTS	S702 = 1 (Yes)	S702A = 1 (Yes)	Q3 >0	DIFFERENCE_PAYMENTS <>0 DIFFERENCE_PAYMENTS IS A COMPUTED VARIABLE (Q1B_2012 – Q6A)
Q12ADVERTISING	S703 = 1 (Yes)	S703A = 1 (Yes)	Q3 >0	DIFFERENCE_ADVERTISING <>0 DIFFERENCE_ADVERTISING IS A COMPUTED VARIABLE (Q1C_2012 – Q7A)

Q12COMMUNICATIONS	S704 = 1 (Yes)	S704A = 1 (Yes)	Q3 >0	DIFFERENCE_COMMUNICATIONS <>0 DIFFERENCE_COMMUNICATIONS ISA COMPUTED VARIABLE (Q1D_2012 – Q8A)
Q12DOCUMENTS	S705 = 1 (Yes)	S705A = 1 (Yes)	Q3 >0	DIFFERENCE_DOCUMENTS <>0 DIFFERENCE_DOCUMENTS IS A COMPUTED VARIABLE (Q1E_2012 – Q8C)
Q12MAGAZINES	S706 = 1 (Yes)	S706A = 1 (Yes)	Q3 >0	DIFFERENCE_MAGAZINES <>0 DIFFERENCE_MAGAZINES IS A COMPUTED VARIABLE (Q1E_2012 – Q9A)
Q12NEWSPAPERS	S707 = 1 (Yes)	S707A = 1 (Yes)	Q3 >0	DIFFERENCE_NEWSPAPERS <>0 DIFFERENCE_NEWSPAPERS IS A COMPUTED VARIABLE (Q1F_2012 – Q10A)
Q12NEWSLETTERS	S708 = 1 (Yes)	S708A = 1 (Yes)	Q3 >0	DIFFERENCE_NEWSLETTERS <>0 DIFFERENCE_NEWSLETTERS IS A COMPUTED VARIABLE (Q1G_2012 – Q11A

In more prosaic terms, only those respondents who indicated that:

(1) their organization used the mail (meaning USPS) for the corresponding application;
(2) they were personally responsible for the corresponding application;
(3) they likely would change the volume of mail to be sent if changes to First-Class Mail service standards were implemented; and
(4) the mail volume they reported would be sent for the corresponding application after the service standards were changed *actually differed* from the mail volume they estimated would be sent under current standards

would be asked those questions referenced in part (a).

b) As reflected in the response to part (a), no responses are truly "missing" as this question incorrectly assumes. The values used in calculating total adjusted mail volumes in these cases were either the volume given in the preceding questions (when respondents indicated they would not change the volume of mail they sent) or the volume given in the succeeding questions (when respondents indicated they would

change the volume of mail they would send if service standards were changed) adjusted by the LIKELY_CHANGE maximum which is the maximum probability that a respondent's behavior would change as a result of the proposed changes to First-Class Mail service standards.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS
ELMORE-YALCH TO POIR 6

Question 5.

Please refer to the file "First-Class Mail_SmallHome_Final_DataFile_USPS-N2012-1.NP1.sav" and the variables Q12BILLS, Q12PAYMENTS, Q12ADVERTISING, Q12COMMUNICATION, Q12DOCUMENTS, and Q12NEWSLETTERS documented on pages 132-136 of your testimony.

a. Please confirm that most of the responses to these questions are missing, or are not provided.

b. Please explain how you handled these missing responses in calculating adjusted total mail volumes.

RESPONSE:

a) Not confirmed.

b) See the response to Presiding Officer's Information Request No. 6, question 4.

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS
ELMORE-YALCH TO POIR 6

Question 6.

Please refer to the file "First-Class Mail_Consumers_Final_DataFile_USPS-N2012-1.NP1.sav" and the variables U6C, U7C, and U8C documented on pages 144-147 of your testimony.

a. Please confirm that most of the responses to these questions are missing, or are not provided.

b. Please explain how you handled these missing responses in calculating adjusted total mail volumes.

RESPONSE:

a) Not confirmed.

b) See the response to Presiding Officer's Information Request No. 6, question 4.